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PUBLIC WORKS AND ELECTRICITY SECRETARIAT

Notification II PWD 143 EIG 74

Bangalore, dated 16th July 1976.

G. S. R. 200.—WHEREAS a draft of the Karnatak Lifts Rules, 1975 was published as required by sub-section (1) of Section 14 of the Karnataka Lifts Act, 1974 (Karnataka Act No. 24 of 1974) in Notification No. G S.R. 312 (PWD. 143 EIG. 1974) dated 23rd October, 1975 in Part IV Section-2C (i) of the *Karnataka Gazette* dated 30th October 1975 inviting objections and suggestions from all persons likely to be affected thereby within 15th November 1975.

AND WHEREAS the said Gazette was made available to the public on 30th October, 1975 ;

AND WHEREAS no objections or suggestions have been received on the said draft ;

NOW, THEREFORE, in exercise of the powers conferred by Section 14 of the Karnataka Lifts Act, 1974 (Karnataka

Act No. 24 of 1974), the Government of Karnataka hereby makes the following rules namely :—

1. **Title and commencement.**—(1) These rules may be called the Karnataka Lifts Rules, 1976.

They shall come into force at once.

2. **Definitions.**—In these rules, unless the context otherwise requires

(a) "Act" means the Karnataka Lifts Act, 1974 ;

(b) "Form" means a form appended to these rules ;

(c) "Schedule" means Schedule appended to these rules ;

(d) "Section" means section of the Act.

3. **Permission to erect a lift.**—Every owner of a place intending to instal a lift in such place shall make an application in Form "A" to the Inspector of Lifts.

4. **Licence to use a lift.**—(1) The notice of completion of the erection of a lift and application for a licence for working the lift under sub-section (1) and (2) of section 4 shall be in Form 'B'.

2. Grant of licence under sub-section (3) of section 4 and sub-section (2) of section 5 shall be in Form 'C'.

5. **Application for licence in case of existing lifts.**—Application for licence in case of existing lifts under sub-section (1) of section 5 shall be in Form 'D'.

6. **Licence for working of lifts not to be granted unless the requirements specified in schedule are complied with.**—No licence for the working of any lift shall be granted unless the requirements laid down in the schedule have been complied with in respect of such lift and its installation.

Provided that in the case of a lift installed before the commencement of the Act, a licence for its workin

may be granted not withstanding the fact that all the aforesaid requirements have not been complied with in respect of such lift and its installation, if an officer authorised in this behalf by the Government is satisfied that no accident resulting in any injury to any person is likely to occur in the operation of the lift. In such a case a note of the requirements which are not complied with shall be made in the licence.

7. **Terms on which lifts are to be worked.**—(1) Every lift and its installation shall be maintained so that the requirements specified in the schedule are always complied with.

Provided that in the case of a lift installed before the commencement of the Act, the requirements, a note of which is made on the licence under rule 6 may not be complied with.

(2) Every lift operator must have attained the age of eighteen years and shall be a person who has been trained in the correct operation of the lift.

8. **Right to enter any building for inspection of lifts and its installations.**—(1) The notice to be given under sub-section (1) of Section 8 shall be in Form 'E'.

(2) The order to be issued under sub-section (2) of Section 8 shall be in Form 'F'.

9. **Report of accidents.**—Notice of any accident occuring in the opperation of any lift resulting in injury to any person required to be given under sub-section (1) of section 10 shall be in Form 'C' Such notice shall be given within twenty four hours of the occurence of the accident.

10 **Fee for additions and alterations to the lift installation.**—If for according previous permission under Section 7 of the Act, inspection of the lift instsllation is found to be necessary a fee of rupees twenty five shall be payable in that behalf.

11. Unused lifts.—When a lift installed at any place cease to be used as such, the owner shall either remove it or maintain it in a safe mechanical condition after disconnecting it entirely from the electric supply. All gates and doors shall be effectively locked so as to prevent the entry of unauthorised persons to the lift well.

12. Manner in which erection plans of lifts shall be submitted.—(1) Plans in quadruplicate (with one copy of tracting cloth drawn to a scale of not less than 1.100) showing the location of the lift complete electrical installation with all wiring, light points, switches, control boards and other electrical apparatus indicating different circuits with colour code, earthing scheme with size of earth leads, method of construction of earth electrode, laying of cables etc., shall be submitted to the Inspector of Lifts.

(2) Specifications of lifts shall be as specified in schedule.

13. Repeal and savings.—(1) The Bombay Lifts Rules 1940 is hereby repealed:

Provided that such repeal shall not effect the previous operation of the said rules or anything done or any action taken thereon and any proceedings under the said rules pending at the commencement of these rules shall be continued and disposed of as far as may be, in accordance with the provisions of these rules.

Provided further that subject to the preceding provision anything done or any action taken under said rules shall be deemed to have been done or taken under the corresponding provisions of these rules and shall continue to be in force accordingly unless and until superseded by anything done or any action taken under the Act or these rules as the case may be.

(2) Nothing contained in these rules shall affect the provisions of the Indian Electricity Act, 1910 and the Indian Electricity Rules, 1956.

1. **Lift Way.**—Every lift way shall be efficiently protected by a substantial and closure fitted with gates or doors so as to prevent, when the gates or doors are shut, any person falling down the lift way or coming into contract with any moving part of the hoist or lift.

2. **Lift-way gates and doors :**—All gates and doors of a liftway shall be so interlocked as to ensure that the gates and doors at any landing cannot be opened except when the lift cage is at such landing, and that the lift cage cannot be moved away from such landing until all the gates and doors at such landing are closed.

3. **Lift to be constructed so as to prevent persons in it from being trapped :**—Every lift and its enclosure shall be so constructed as to prevent any part of any person carried in the hoist or lift being trapped between the counter balance weight and any other moving part of the hoist or lift.

4. **Load to be marked in the lift cage :**—There shall be marked conspicuously in every lift cage the maximum number of passengers (excluding the lift operator) which it can safely carry. No Passengers exceeding this number shall be carried in the lift cage.

5. **Automatic devices for cutting off power to be provided :**—Efficient automatic devices in each lift shall be provided and maintained in each lift whereby all power shall be cut off from the motor before the car or balance weight lands on the buffers.

6. **Lift wells :**—(1) No equipment except that forming a part of the lift or necessary for its maintenance shall be installed in the lift well.

(2) The internal surface of lift wells, so far as is practicable, shall be kept flush. Any projections extending inwards from the general surface of the enclosure, at or near the openings or landings shall be bevelled by means of hard wood or metal plates to an angle of not less than 60° from the horizontal or by means of cement rendering or other fire resisting materials.

(3) Sufficient space shall be provided between the guides for the car and the side walls of the Lift well enclosure to allow safe and easy access to the parts of the safety gears for the maintenance and repairs.

(4) Lift wells, together with the whole of contained equipment and apparatus, shall be rendered fire resisting to the greatest possible extent.

(5) In case of completely enclosed lift well, a notice with the word 'Lift' may be placed outside of each landing door.

(6) Every counter weight shall travel in juxtaposition to its car in the same lift well.

(7) When a lift well is common to more than one lift and counter weights are in juxtaposition to lift cars other than those to which they are attached, a screen of adequate strength shall be fixed in the lift well to protect persons working in the lift well or on the lift car from accidental contacts with such counter-weights in any part of their travel.

(8) No room, passage or thoroughfare shall be permitted under any lift well and where such conditions are unavoidable the following provisions shall be made :

(a) Spring or oil buffers shall be provided for lift car and counter-weight;

(b) The pit shall be sufficiently strong to withstand successfully the impact of the lift car with rated load or the impact of the counter weight when either is descending at rated speed or at governor tripping speed; and

(c) The car and the counter weight shall be provided with a governor operated safety gear.

7. **Lift well enclosures** :—(1) Lift well enclosures shall be provided and shall extend on all sides from floor to floor or stair to stair.

(2) The inner sides of the lift well enclosure facing any car entrance shall as far as practicable form a smooth continuous flush surface devoid of projections of recesses.

Note:—In existing lift wells the aforesaid requirement may be made by filling any recesses or spaces between projections or alternatively by covering them with suitable sheet material. If it is not possible to render flush any projection or tops of recesses they should be bevelled on the underside to an angle of 60° from the horizontal by means of hard wood, metal plates, cement rendering or other fire resisting materials. Where a car levelling device is operative with car door opening, such interior surface shall always form a smooth surface below each landing level for a depth to at least the depth of the car levelling zone *plus* the distance through which the lift car may travel of its own momentum when the power is cut off.

(3) Where an open lift well would increase the fire risk in a building, the lift well enclosure shall be of fire resisting constructions.

(4) Where wire grille or similar construction is used, the mesh or opening shall be not greater than three centimeter and the lift well enclosure shall be of sufficient strength to resist accidental impacts by users of the stair case or adjoining floors or by materials or trucks being moved in the vicinity.

(5) Where the clearance between inside of an open type lift well enclosure and any moving or movable part of the lift equipment or apparatus is less than five centimeters the opening in the enclosure shall be further protected by netting of square mesh of operture not greater than one centimeter and of wire not smaller than one millimetre.

(6) Any vision panel in a car door shall be fire resisting and shall be of safety, wired or similar glass. The area between division bars or other support shall not exceed 0.1 m2. The bottom rail of a framed and glazed door shall be not less than thirty centimeters deep. Any projections or recesses (including vision panels) in sliding car poors shall be kept to a minimum in order to avoid

finger trapping between sliding parts of the door and any fixed part of the structure.

(7) Where landing doors are manually operated and no indicators are provided, vision panels of similar construction as in above shall be provided.

(8) No automatic fire door or shutter which operates by means of a fusible link or otherwise due to action of heat shall be allowed in any landing, opening or the lift-way enclosure of any lift, if such opening gives access to any exit from the building.

(9) There shall be no opening in the lift well enclosure permitting access to the lift car by passing the counter-weight.

(10) **Indicator.**—Where lifts are installed in totally enclosed wells, position indicators shall be provided at each floor; however, where position indicators are not provided, at least direction indicators or 'in-use' indicators shall be provided at each landing.

(11) **Doors.**—Every lift shall on each side from which there is access to a landing be fitted with a door. Such door shall be fitted with efficient interlocking or other devices so as to secure that the door cannot be opened except when the lift car is at the landing until the door is closed and locked where mid bar collapsible doors are used for landing entrance they shall not be power operated.

8. (A) Lift pits bottom clearance and top clearance.—(1) A lift pit shall be provided at the bottom of every lift.

(2) Pits shall be soundly constructed and maintained in a dry and clean condition. Where necessary, provision shall be made for permanent drainage.

(3) Where the pit depth exceeds two metres, suitable access shall be provided by a cat ladder or any other suitable device and a light point and switch shall also be provided for facility of maintenance and repair work.

8. (B) **Bottom and top Car Clearances.**—(1) Bottom car clearance—Where the car rests on its fully compressed buffer, there shall be a vertical clearance of not less than sixty centimeters between the pit floor and the lowest structural or mechancial part, equipment or device installed beneath the car platform, except guide shoes or rollers, safety-jaw assemblies and platform aprons or guards. When the car rests on its fully compressed buffer, no part of the car or any equipment attached therto shall strike any part of the pit or any part of the equipment located therein.

(2) **Top Car clearance.**—The top car clearance shall be not less than the sum of the following four items.—

(a) The bottom counterweight runby;

(b) The stroke of the counterweight buffer used,

(c) Sixty Centimeters or the distance which any sheave or any other equipment mounted in or on the cross-head projects above the top of the car cross head whichever is greater; and

(d) One half of the gravity stopping distance based on:

(i) one hundred and fifteen percent of the rate speed where oil buffers are used and no provision is made to prevent the jump of the car at counter weight buffer engagement.

(ii) Governor tripping speed where spring buffers are used

8. (C) **Bottom runby for cars and counterweights.**—(1) bottom runby of cars and counterweights shall be not less than the following.—

(a) Fifteen centimetres where oil buffers are used

(b) where spring buffers are used;

(i) 15 cms. where generator field (ward-leonard) control is used; and

(ii) not less than the following where rheostatic control (or AC machine) is used ;

Rated speed M/s	Runby Cm.
Up to 0.125	7.5
0.125 to 0.25	15
0.25 to 0.50	22.5
0.50 to 1	30

(2) Maximum bottom runby :

In no case shall the maximum bottom runby exceed the following :

(a) 60 cms for cars ; and

(b) 90 cms for counter weights.

(3) **Top counter weight clearances** —The top counter-weight clearances shall be not less than the sum of the following four items :

(a) the bottom car runby ;

(b) the stroke of the car buffer used ;

(c) 15 cms ; and

(d) one half of the gravity stopping distance based on :

(i) One hundered and fifteen per cent of the rated speed where oil buffers are used and no provision is made to prevent jump of the counter weight at car buffer engagement ; and

(ii) governor tripping speed where spring buffers are used.

9. **Suspension ropes.**—(1) Each suspension rope shall separately and independently fixed to the car and counter weight. The simple suspension of the lift car or the counter-weight by means of a sheave or the like shall count as one suspension only.

(2) All ropes anchored to a winding drum shall have not less than one complete turn of the ropes on the winding drum when the car of counter weight has reached the extreme limit of its travel and clearance ;

(3) No car or counterweight rope shall be repaired or lengthened by splicing.

(4) The winding drum end of car and counter-weight ropes shall be secured by clamps on the inside of the drum.

(5) Means shall be provided to equalise the load on the individual suspension ropes.

(6) Chains shall not be used for the suspension of a lifts and not less than three independent suspenesion ropes shall be used for car or counterweight of any lift with traction drive ;

(7) The minimum diameter of ropes for cars and counterweight of passenger and goods lifts shall be 1.25 cm.

(8) **Factor of Safety.**—The tension in a suspension rope should be related to the operating conditions as a whole, for example, rope speed, ratio of diameter of pulley or sheave to rope diameter. type of rope grove and intensity or service as well as to its breaking load.

For normal operating conditions with sheave diameter as given in sub-item (5) of item 15, the minimum factor of safety shall be as under :

Rope speed of passenger and goods lifts (M/s.)	Factor of safety
2·0	10
3·5	11
7·0	12

For the purpose of code the factor of safety is given by

$$\frac{f \times n \times k}{w}$$

Where f—Manufacturer's rated breaking strength of one rope ;

n—Number of separate suspension ropes under load ;

k—Roping factor, i.e., 1 for 1·1 roping and 2 for 2:1 roping ;

& w—Max. static load imposed on all car ropes with the car and its rated load at any position in the lift well in the same units as F.

(9) The car and counterweight ends of the suspension ropes shall be fastened by spliced return loops, clipped return loops or individual tapere babbitted sockets. Loops shall not bear directly on their fixings, but shall be lined with proper thimble eyes or equal protection. In all cases, the fastenings shall be capable of sustaining a load not less than eighty per cent of the ultimate breaking strength of the suspension ropes.

(10) Fixing of ropes shall, so far as is applicable, conform sound engineering practice.

(11) Tensioning devices for compensation ropes governor ropes and the like shall be protected against damage due to falling objects.

(12) Two to one roping–Where two to one roping is employed to ensure safety, a guard shall be fitted on the top of the car so as to :

(a) Cover entirely the upper half of the sheave ;

(b) prevent fingers or tools being caught between the ropes and the sheave ;

(c) cover any spokes or open webs or the sheaves: and

(d) prevent the ropes leaving their correct grooves in the sheave.

A substantial hand hold shall be provided at a convenient height surrounding the guard but clear of the ropes.

10. Guides:—(1) Car and counter-weight guides shall be of rigid steel in all cases except where the nature of the processes carried on in the building render these unsuitable due to acid fumes or similar causes.

(2) T. Section guide rails shall normally be used for all speeds. The T. Section to be adopted shall be one of the sizes specified in IS: 1173-1796. In case all sections meeting the requirements are not covered by IS: 1173-1967 alternative sections may be chosen. These sections may be machined. Round guides shall not be used. However, sections approved by the appropriate authority may be used, provided they have adequate section modules, moment of inertial and sectional area sufficient to withstand the compressive forces resulting from the application of the car or counter-weight safety devices.

(3) Guides shall be continued throughout the entire length and shall be provided with adequate steel brackets or equivalent fixing of such design and spacing that the guides shall not deflect more than five milimetres under normal operation.

(4) Guides shall be arranged to withstand the action of safety gear when stopping a counter weight or a fully loaded car.

(5) Guides shall be of such length that it shall not be possible for any of the car or counter-weight shoes to run off the guides.

11. Lift Cars:—(a) (1) Lift cars shall be enclosed on all sides by means of the car body, door and such enclosure shall be at least two metres in height. A roof, solid or perforated, capable of supporting 2 persons, that is 2 x 68 Kg. shall be provided. Perforations shall be sufficiently close in mesh not exceeding forty millimetres to provide reasonable protection against falling articles to any person travelling in the car. The car floor shall be of a smooth non-slip surface.

(2) Each lift car shall be fitted with a light, and the light shall be left burning during the whole time the lift is available for use.

(3) Where car levelling devices are used substantial aprons of sufficient depth shall be fitted to the car floor to ensure that no space is permitted between the threshdol

and the landing while the car is being levelled to a floor.

(4) Where the lift car has solid enclosures and doors, provisions shall be made for a fan and for adequate ventilation. To permit switching off the power supply to the lift without switching off the fan and light, a separate switch shall be provided for fan and light. Ventilation openings shall be provided in the enclosure walls above 1.8 meter level and below 0.3 metre level. The total area of openings shall be not less than 0.035 m for each square metre of area of the car floor divided equally between the top and the bottom levels.

Any opening provided by a ventilating fan may be regarded as forming part of the car in which it is fitted.

(5) The enclosure and doors including their tracks of every lift car shall withstand a thrust of thirty-five Kilograms applied normally at any point, excepting any vision panel without permanent deformation.

(6) A three-pin plug socket with switch for a hand lamp sall be fitted on top of the lift car for use by persons working thereon.

(7) Lift car platforms shall be of framed construction and designed on the basis of rated loads evenly distributed. Platforms for Goods cars shall be designed to suit the particular condition of loading The minimum factor of safety shall be 5 for steel and 8 for timber.

(8) Glass shall not be used in lift car except for the following purposes :

(a) as covers for certificate ;
(b) for lighting fixtures ;
(c) for appliances used in connection with the operation of the car ; and
(d) for vision panels and mirrors.

Glass exceeding 930 cm^2 in area shall be of faminated type. The total area of glass used in enclosures and doors shall not exceed 3720 cm^2.

9. The car of every automatically operated lift in which a passenger or an attendant is at any time carried shall be provided with an emergency stopping device and an alarm signal, both operated by a switch, which shall be clearly marked. The alarm shall be clearly audible outside the lift way in order to obtain assistance in case of break down or failure between the floors.

10. Doors are recommended when power operation is used, but if space is limited, collapsible doors may be installed but they shall not be power operated.

11. (a) Where a space between the face of the threshold of any car entrance and the inside of the adjacent lift well enclosure exceeds 13 cm., the car door of such entrance shall be provided with means to prevent it from being opened except when the lift car is at a landing served by such car entrance.

(b) **Car Frame:**—(1)Every lift car shall be carried in a complete frame of steel which shall be sufficiently rigid to withstand the operation of the safety gear without permanent deformation to the car frame.

(2) At least four renewable guide shoes or guide shoes with renewable linings or set of roller guides shall be provided, two at the top and two at the bottom of the car frame.

12. Where partitions are installed in lift cars for the purposes of restricting the platform net area for passenger use, they shall be permanently bolted, riverted or welded in place. Doors shall not be used. Partitions shall be so installed as to provide for approximately symmetrical loading.

12. **Maintenance of lifts as per Karnataka Lift Rules:**— Every owner of a lift shall enter into a contract with the makers of the lift or their agents, for the satisfactory maintenance, including cleaning, oiling, adjusting and repairing of the lift. This clause shall not apply where in the opinion of the Electrical Inspector of

lifts the owner of the lift has suitable means for the satisfactory maintenance of the lift, including cleaning, oiling, adjusting and repairing of the lift.

13. **(A) Car doors landing doors and locking devices for landing gates doors and shutter:**—(1) A car door or collapsable door shall be placed at each entrance of every lift car. Such doors shall when closed guard the full opening except in the case of vertical opening car doors of freight lifts which may be limited to 2 metres and each door shall be equipped with an electric contact which shall prevent the movement of the car and the circuit shall not be completed until the leading edge of the door is within 50 mm. of the nearest phase of the door jamb or when the leading edges of the centre opening doors are with in 50 mm. of contact of eachother. The contacts shall be opened positively, independently of gravity. The electric contact shall be situated or protected so as to be reasonably in accessible from inside the car.

(2) Car doors including their tracks shall withstand a thrust of 35 kg. applied normally at any point excepting any vision panel without permanent deformation and without the doors being sprung from their guides. For collapsable doors, this thrust may be applied at points on two adjacent pickets so as to divide the load equally.

(3) Power operated car doors on automatically operated lifts shall be so designed that their closing and opening is not likely to injure a person.

(4) Sliding car doors shall be guided at top and bottom.

(5) Hangers and tracks for doors together with their fixings shall be of adequate strength and rigidity. Means. shall be provided to prevent all sliding car doors from jumping the tracks and suitable stoppers shall be provided to prevent the hanger carriage from leaving the end of the track.

(6) Collapsable doors for car shall be close picket type and no openings exceedings 5.5. cm. in width shall

be permitted between the vertical members of the doors when they are fully extended.

(7) Manual opening of car doors:—Car doors shall be arranged so that when the car is stopped they may be opened by hand from inside the car.

(B) Landing doors: (1) Landing doors for passenger and a goods lifts:—All landing openings in lift well enclosures shall be protected by doors which shall extend to the full height and full width of the landing opening. The top track of a landing door shall not obstruct the entrance of the lift car.

(2) The distance between the lift well side of the car door and the lift well side of the landing door shall not exceed 14 cm. where the car door or the landing door consists of two or more panels, the 14 cm. dimension shall apply to the door panel nearest to the side edge. The distance between the car and the landing sills shall not exceed 40 mm.

(3) Open type landing doors shall be of a close picket type and no openings exceeding 5.5. cm. in width shall be permitted between the vertical members of the doors when it is fully extended.

(4) The opening for the Landing doors shall be not wider than that of the width of lift car.

(5) Landing doors and their tracks shall be capable of withstanding a thrust of 35 Kg. applied normally at any point, excepting any vision panel without causing permanent deformation and without the doors being sprung from their guides. This thrust may be applied to collapsable doors at points on two adjacent pickets so as to divide the load equally.

(6) Any vision panel in a car, door shall be fire resisting and shall be of safety, wired or similar glass. Any projections on or recesses (including vision panels) in sliding car doors shall be kept to a minimum in order to avoid finger trapping between sliding points of the door

(7) Hangers and tracks for doors together with their fixing shall be of adequate strength to withstand stresses specified in (5). Means shall be provided to prevent hangers for all landing sliding doors from jumping the tracks or jamming and suitable stops shall be provided to prevent the hanger carriage from leaving the end of the track.

(C) Locking divices for landing doors and shutters:—(1) Every landing door shall be fitted with a locking device which shall comply with the following requirements:

(i) It shall not be possible to open the landing door from the landing side until the lift car is within that particular landing zone (Provision may be made for opening of the door in case of emergency by means of a special key).

(ii) The electrical and mechanical parts of all locking devices shall be of substantial design and construction. The removel of any inspection cover or covers shall not affect the operation of a device. All locking devices shall be fixed securely to the enclosure by suitable means.

(iii) The locking devices for landing doors shall be so designed that the lock contact is not closed until the door is closed and the circuit shall not be completed until the leading edge of the door is within 50 mm. of the nearest phase of the door-jamb or when the leading edges of the centre opening door are within 50 mm. contact of each other.

(iv) Any springs used in the locking device shall be in compression and properly supported. The failure of a spring shall not render the lock unsafe.

(v) Contact shall be of solid type pivoted or hinged and of sturdy construction.

(vi) Provision shall be made on lifts operated from the car and landings to prevent the opening of any landing door when the car is passing that zone in response to a

(vii) The conduit carrying the conductors to the lock or contact boxes shall be fixed securely to the boxes and shall maintain electrical and mechanical continuity.

(viii) The levers operating the mechanical part of the locking device shall be protected from interference from the landing slide of the lift enclosure.

(ix) The systems of landing door or shutter interlocks shall be of the following three kinds :

(a) The system in which the landing door or shutter is locked by means of a device comprising a lock box which is fitted to the frame of the door or shutter. Such devices are commonly known as electrical and mechanical interlocks.

(b) The system in which lift is operated only from the car and provided with solid sliding landing doors which are equipped with a door-closer and are locked with mechanical contrivance actuated by means of levers operated from the car side only.

(c) The system in which the type of control does not require the presence of an attendant in the car and in which the landing doors are of the solid sliding type equipped with a door closer and locked with a mechanical contrivance actuated by means of levers.

(2) The design of the locking system shall be such that reasonable wear between working parts does not permit of interference with the operation of the lift by movement of the lock handles.

(3) The locking device shall not prevent operation of the lift while the emergency release switch is on temporary use or when the car is being moved under the control of the levelling device.

(4) Lift cars having one or more entrances, any of which opens into a space in any portion of the travel which is in excess of 13 cm. shall have the door to that side of the car protected by mechanical locking divice with the electrical interlock.

14. Motor rooms and overhead structures:- (1) The lift machine, controller and all other apparatus and equipment of a lift installation, excepting such apparatus and equipment as function in the lift well or other positions, shall be placed in the motor room which shall be adequately lighted and rendered fireproof and weather proof.

(2) The motor generators controlling the speed of multi-voltage or variable voltage machines, secondary sheaves, pulleys, governors, floor selecting equipment may be placed in a place other than the motor room but such position shall also be adequately lighted, ventilated and rendered fireproof and weather proof.

(3) The motor room shall be designed and constructed to carry safely at any point the heaviest portion or unit of equipment, both during erection and for maintenance purposes.

(4) The motor room shall be kept closed except to those who are concerned with the operation and maintenance of the machinery or equipment. When the electrical pressure exceeds 250 Volts DC or 125 Volts AC a danger notice shall be displayed permanently on the outside of the door and on or near the machinery.

(5) The motor room shall be equipped with an insulated portable hand lamp provided with flexible cord for examining the machinery.

(6) If any machine room floor or platform does not extend to the enclosing walls, the open sides shall be provided with hand rails or otherwise suitably guarded.

(7) The motor room shall be provided with access doors opening outwards.

(8) The motor room shall not be used as a store room or for any purpose other than housing the lift machinery and its associated apparatus and equipments.

(9) All machines, pulleys, over-speed governors and similar units shall be so supported and held as to prevent any of these machines or parts thereof, becoming loose or displaced affecting their safe working Supporting beam shall be of steel or reinforced concrete.

(10) There shall be a direct independent access from the top-most landing to the lift motor room.

(11) The height of the machine room shall be sufficient to allow any portion of equipment to be accessible and removable for repair and replacement and shall be not less than 2 meters clear from the floor or the platform of machine whichever is higher.

(12) The total load on overhead beams shall be assumed as equal to all equipments resting on the beams *plus* twice the minimum load suspended from the beams.

(13) The factor of safety for all overhead beams and supports based on ultimate strength of the material and load in accordance with the sub-rule (12) shall be not less than the followihg :

For Steel	....	5
For reinforced concrete	....	7

(14) The deflection of the overhead beams under the minimum static load calculated in accordance with sub-rule (12) shall not exceed 1/1700 of the span.

(15) **Drums, sheaves and pulleys** :- 1. Drums shall be long enough to take all the rope in one layer. All drums, sheaves and pulleys shall have flanges extending one rope diameter beyond the centre of the rope wound on them or atleast to the level of the surface of the rope when close fitting guards are provided.

2. All driving sheaves fixed to and revolving with a shaft shall be fixed by means of sunk keys of sufficient strength and quality and shall conform to the relevant Indian Standards.

3. Sheaves and pulleys shall be of cast iron or steel and free from cracks, sand holes and other injurious defects. They shall have machined rope grooves The traction sheave shall be grooved to produce proper traction and shall be sufficiently thick to provid for future wear in

provide a smooth bed for the rope. Deflector or secondary sheave assemblies where used shall be mounted in proper alignment with the traction sheave.

4. The grooving of a diverter sheave or pulley shall have a radius larger than the radius of the rope by not less than the amount shown in table and shall extend at least over one-third of circumference of the rope.

FLANGE AND DIVERTER SHEAVE OR PULLEY GROOVE

Rope diameter in mm.		Minimum difference between radius of groove and rope radius
		mm.
Upto 16	...	0·75
18 to 22	...	1.25
24 to 27	...	1.5
31 & above	...	2.5

5. **Size of Sheaves and Pulleys :—**

The diameter of sheave shall not be less than obtained from the following :—

Class of rope		Diameter of sheave or pulley
Round strand :	6x19 (12/6/1)	D(2.955 plus 37) with a min of 40 D
	6x19(12/6/1)plus filler wires	
	8x19(12/6/1)plus 6 filler wires	
	8x19(/9/1)scale	
Flattened strand :	6x25 flattend strand (12/12/Triangle)	D(2.955 plus 44) with a min. of 47 D
	6x19(9/9/1 scale)	

Note : D — dia of rope in cm.
& S — Rope speed in meters/Sec.

6. **Housing of overhaed pulleys** :—The pent house or other space in which overhead pulleys, overspeed governors and similar machinery are housed shall have a clear height of at least 1.2 Mtr. and shall allow safe and convenient access and where practicable, have a substantial

platform or floor and be provided with permanent and adequate artifical illumination.

16. (a) Emergency Safety Device—In case of a safety gear actuated by means of a rope unwinding from a drum, such drum shall have at least three complete turns on the drum after the safety gear has been applied and the car stopped. The minimum diameter of such drum shall be thirteen centimeters The device for holding the safety rope or rod in position during normal operation shall be fixed to the steel frame work of the car and not to the car body work. The ends of the governor rope shallbe held by a clevis or other similar means which shall. affect its purpose by friction. The clevis or other holding device shall be supported by or from the steel frame work of the car and not fixed to the car body work.

16 (b) Safety Gears—(1) Every lift suspended by wire ropes shall be provided with one or more car safety devices, attached to the lift car frame and placed beneath the car. The safety devices shall be capable of stopping and sustaining the lift car with full rated load in the car at governor tripping speed.

(2) Every Lift having a travel exceeding 5.5 meters shall be equipped with an overspeed governor device which will operate to apply the safety gear in the event of the speed of the lift car in the descending direction exceeding a predetermined limit.

(3) The application of the safety device shall not cause the lift car platform to become out of level in excess of three centimeter per meter measured in any direction.

(4) When the safety gear is applied, no decrease in the tension of the governor rope or motion of the car in the descending direction shall release the safety gear.

(5) When a safety gear comes into operation, it should automatically open circuit the operating circuit but it should be possible for responsible person to release the safety gear, after a thorough inspection of the equipment and after taking any necessary precautions, by reversing the direction of the motion of the machine.

(6) The safety gear shall operate to stop and sustain the lift car in the event of failure of the suspension ropes, or in the event of lift exceeding a predetermined maximum speed in the descending direction when a speed governor is fitted.

(7) Every safety gear shall operate positively and machanically independent of any springs used in its construction.

(8) Any levers or dogs operated by shafts shall be keyed to such shaft by keys conforming to relevant Indian Standard.

(9) The design of the safety gear shall provide for its application to both guides and to each side of such guides substantially equally.

(10) Any additional rope used solely for purpose of operating the safety gear shall be led over independent, pulleys, running on independent shafts.

(11) All bearings in safeties and of the safety operting mechanism shall be of corrosion resistant construction with one or both members of a bearing made of, or electroplated with, a corrosion resistant material.

(12) Car and counterweight safety devices shall be actuated by separate governors. Provision shall be made to cause the application of the counterweight safety gear, but at not more than 10 per cent in excess of that at which the lift car safety gear applies.

(13) Broken rope safety gear of the instantaneous type may be used on counter-weight within the limits specified in the following table ;—

Broken rope Rated speed	Safety Gears Total weight of counter.weight
M/s.	Kg.
1.25	900
1.0	1350
0.75	1800
0.5	2250

(14) The following type of safety gears are recommended for use :

(a) Instantaneous type, limited to speed not exceeding one metre per second ;

(b) Gradual wedge clamp type with gradual increasing retarding force ;

(c) Flexible guide clamp type with constant retarding force and

(d) Combination instantaneous and oil buffer safety for speed not exceeding 2.5 m/s.

(5) No safety gear shall be permitted to stop ascending lift car or counter weight. If any ascending car is to be stopped on account of over-speed, a safety gear shall be fitted to the counter weight for this purpose. The governor may, however, open the motor circuit and apply the brake in the event of over-speed in the ascendingodirection.

(16) The rope attached to any safety-gear actuating drum shall have not less than two runs of rope remaining on the drum after the safety jaws have gripped the guides and stopped the lift car.

(17) Any drive to the car governor rope shall be effected from the car frame.

(18) Any connecting device between a governor rope and car frame (or counter weight) that is intended to be released when the safety gear is applied shall be retained in its normal position by a spring loaded device.

(19) No safety gear shall depend on the completion or maintenance of an electric circuit for its operation. All safety gears shall be applied mechanically.

(20) The gripping surfaces of the car or counter-weight safety gears shall not used to guide the lift car or counter-weight but shall run free of the guides during normal operation of the lifts.

(21) It shall not be permitted for the vibration of the lift car frame to cause the safety gear to be applied.

Note :—A pawl or ratchet shall not be held to constitute a sufficient safety for lifts travelling in a vertical or substantially vertical direction.

(22) Safety gears, designed to stop the lift car or counter weight in a distance related to car or counter weight speed shall stop the lift car with rated load or the counter-weight from governor tripping speed within the range of stopping distances given in the following table. The stopping distances shall mean the actual slide as observed from the markings on the guides made by the safety gear.

Stopping distance for gradual wedge clamp and feasible guide clamp type safety gears.

Sl. No.	Governor tripping speed m/s	Stopping distance mm Max	mm Min
1	2	3	4
1	0.88	368	161
2	1	401	173
3	1.25	482	202
4	1.5	582	237
5	1.75	700	278
6	2.0	836	326
7	2.25	990	380
8	2.5	1162	441

Note :—The following formulae shall be used to determine the maximum and minimum stopping distances for gradual wedge clamp and flexible guide clamp type safeties for car and counter-weight for all intermediate speeds :

S1	...	51v2 plus 256
S2	...	51v2 plus 122
Where S1	...	Max stopping distance in mm
S2	...	Min stopping distance in mm
and V	...	Governor stopping speed in m/s

(23) The motor control and the brake-control circuits shall be opened at the time the safety gear is applied.

17. Safety Gear Tests.—(a) No lifts shall be brought into service unless and until a rated load test has been made on it to determine whether the safety gear operates

satisfactorily within the specified limits. The owner or his contractor shall arrange at his own expenditure, for this test to be carried out to the satisfaction of the Inspector of Lifts.

(b) The test shall be carried out in the presence of the engineer who is entrusted with the work of installing the lift.

(c) The runaway test shall be made with all electrical apparatus intact except for the overspeed contact or cut out on the Governor. For lifts operating directly from alternating current, the governor shall be tripped by hand at the maximum speed obtainable.

(d) At each examination the safety gear shall be tested with lift car stationary and the car shall be lowered to ensure that the safety gear functions correctly.

18. Governors.—(1) Governors shall be placed where they are not struck by the lift car or counter weight in the event of over-run.

(2) Governors for car safety gears shall be adjusted to actuate the safety gear at the following speeds:

(a) For rated speeds up to one metre per second maximum governor tripping speed shall be either 140 per cent of rated speed or 0.88 m/sec. whichever is higher. For rated speed above one metre per second maximum governor tripping speed shall be 115 per cent of the rated speed plus 0.25 m/s.

(b) Minimum governor tripping speed shall be 115 per cent of the rated speed.

(3) Any governor for a counter weight safety gear shall be adjusted to trip at a speed greater than, but not more than ten per cent above the tripping speed of the car governor.

(4) Each governor shall be marked with its tripping speed in metres per second.

(5) Where safety devices other than the instantaneous type are provided, a switch, operated by overspeed actio

of the governor shall be provided on it to open the motor-control and brake-control circuits at the following speeds before or at the time the governor trips :

(a) In the down direction at not more than ninety per cent of the speed at which the governor is set to trip in the down direction ; and

(b) In the up direction at not more than hundred per cent of the speed at which the governor is said to trip in the down direction.

(6) Governor ropes shall be not less than eight milimeters in diameter and shall be of iron steel or phospher bronze and of suitable construction.

(7) Governor ropes shall run clear of the governor jaws during normal operation of the lift.

(8) The arc of contract made by the Governor rope and the governor sheave shall, in conjunction with the rope tensions device, provide sufficient tractive efforts to cause proper operation of the Governor.

(9) Governor jaws and their mounting shall be so designed that any cutting, tearing or deformation of the rope resulting from their application shall not prevent proper operation of the safety gear.

(10) It is recommended that governor gears should have self-lubricating bearings which do not require frequent attention.

19. Slack rope Switch.—All lifts having winding drum machines shall be equipped with an effective slack rope switch to cut off the power and stop the machine if the lift car is obstructed in its travel in the descending direction. Slack rope switches shall be constructed so as to be manually re-setting when the slack in the rope has been taken up.

20. Installation of condensers.—The installation of condensers, the operation or failure of which will cause an unsafe condition shall not be permited.

21. **A. Shaft fillets and keys.**—(1) A fillet shall be provided at any point of change in the diameter or drying-machine shafts and sheave shafts to prevent excessive stress concentration in the shafts.

(2) Shafts which support sheaves, gears, couplings and other members, and which transmit torque shall be provided with light fitting keys.

21. **B. Counterweights.**—(i) The traction shall be such that no appreciable slip may occur under normal conditions but that slip shall be free to take place upon the landing of either the car or the counterweight.

(ii) Adjustable guide shoes on counterweight shall be so designed that their correct adjustment shall be maintained independent of the tightness of bolts or set screws through slotted holes.

(iii) Guide shoes of steel guides, where used, shall have the sides extending at least one centimeter beyond the semicircle(centre line of the guides).

(iv) Rod type counterweights may be employed on lifts where the weight of the counterweight does not exceed one metric tonne and the speed is limited to one metre per second, the sections being secured by at least two rods passing through holes in all sections having lock-nuts at each end, further secured by split pins and the factor of safety of the threaded portion of the rods shall be not less than ten. For speeds above one metre per second a rigid steel frame shall be provided and any filling sections adequately anchored.

(v) For counterweight frames, the following factors of safety shall apply:

(a) Wrought iron and steel–5;

(b) Cast iron–40;

(c) Any other material shall be used solely for filling purposes;

(vi) Counterweight shall withstand the effect of buffer impact;

(vii) All counterwights shall be of metal and shall travel between rigid guides;

(viii) At least four renewable guide shoes or guide shoes with renewable lining or set of roller guides shall be provided, two at the top and two at the bottom of the weight ;

(ix) Rod type counterweight may be slotted for use with steel guides in which case separate guide shoes need not be fitted ;

(x) **Counterweight guides :—** The guide shoes of counter-weight shall be fixed and adjusted so that the play in the direction of the width of the counterweight does not exceed five milimetres.

22. Controllers and operating devices :—(1) A manually operated main disconnecting switch shall be installed in the main circuit cables of electric lift machines or motor generator sets. This switch shall be placed close to and visible from the machine or motor generator set in controls.

(2) When metal-to-metal contact are used on the controller switches for opening the main circuits or for stopping a lift machine at least two independent current breaks shall be incorporated. In the event of an earth fault with any door open the lift shall not work.

(3) Operation of a spring or springs in tension or the completion of another electric circuit shall not be depended upon to break the current to stop the lift at terminal landings.

(4) The interruption of the electrical circuit shall stop and/or shall prevent the movement of the car.

(5) Each lift machine operated by a poly-phase a.c. motor shall be protected against phase reversal or failure. This shall apply to not an a.c. motor forming part of a motor generator. This protection shall be considered provided in the case of generator-food control having alternating current motor-generator driving motors, provided a reversal of phase does not cause the elevator driving machine motor to operator in the wrong direction

Controllers whose switches a poly phase torque motors provide inherent protection against phase reversal or failure.

(6) No control system shall be used which depends on the completion or maintenance of an electrical circuit for the interruption of the power supply and the application of the electro-mechanical brakes when the lift car reaches the terminal floors, neither for the operation of safety gears, nor for the closing of a contractor by an emergency stop switch, except that this regulation shall not apply to dynamic breaking nor speed control devices.

(7) All control circuits should be fused or otherwise protected against faults or overloads, independently of the main circuits.

(8) The voltage of any controller operating circuit shall not exceed the low voltage of 250 volts as defined in the latest provisions of Indian Electricity Rules. The control circuit shall be suitably protected independently of the main circuit and it shall be so arranged that an earth fault or open circuit shall not create an unsafe condition.

(9) Controllers operated by hand ropes, levers or small devices shall not be permitted.

(10) Automatic (push button operated) lift shall conform to the following requirements ;

(i) (a) It shall not be possible to start the lift car under normal operation unless every landing door and car door is in the closed position.

(b) The landing push bottons shall be in operative during the whole time an occupied lift car is in use. The Landing push buttons shall remain in operative until the person or persons, using the lift, have vacated the lift car and the landing door has been again closed, except that with the collective control, the push button may be utilised for this purpose, provided they do not in any way interfere with the direction of current journey and that a time lag is provided to regulate restarting of the lift car.

(ii) An emergency stop switch may also be fitted on the top of every lift car for use by persons working thereon.

23. (A). **Capacity and Loading** :—(a) The Contract load test shall be made by the Inspector of Lifts of every new power lift Installation before it is put into general use. Such contract load test shall be made with full load in the lift cage and in the presence of the engineer who is entrusted with the work of erecting the lift.

(b) The breakes limit switches, buffers, safety gear or gears and speed governor as fitted shall be made to function during each test and electrical wiring and connections shall be tested for earthing, insultation resistance and general soundness.

(c) A load Plate giving the rated load of the lift shall be fitted in each lift car in a conspicuous position. For passenger lifts, the rated load shall be given in persons and kilograms. For goods lifts, the rated load shall be given in kilograms or other convenient units and the persons for the purpose of this clause, a person shall be regarded as weighing 68 Kg.

Maximum net car areas for various rated loads :

CLAUSE 30 (1)

Rated Load in K.G.	*Max. net inside car area in M2*
272	0·77
340	0.95
408	1·12
476	1.28
544	1.45
612	1.60
680	1.76
748	1.90
816	2.05
884	2.20

24. **Lift Machines** :—(1) No friction gearing, belt chain, clutch or chain drum mechanism shall be used for connecting the main driving gear to the traction sheaves ;

(2) Traction machines for lifts shall be equipped with the brakes applied automatically by means of springs in compression only or by gravity when the operating device is in the 'Off' position or in the event of power being cut off from any cause ;

(3) Electric lift machines shall be provided with brakes released electrically ;

(4) No single earth fault, short circuit or counter electro-motive force (e.m.f.) shall prevent the brake from being applied during normal operation.

(5) **Driving machine brakes.**—The brakes shall be designed to have a capacity sufficient to hold the car rest with its rated load ;

(6) The motar of each lift machine or the worm shaft shall be arranged so as to provide hand winding facilities and shall be suitably marked for the direction of up and down travel of the lift car.

25 Buffers :—(1) Buffers of either spring or oil shal be fitted under the lift car of every lift.

(2) Spring or oil buffers shall be used with lifts having a rated speed up to 1.5 M/s Oil buffers shall be used with lifts having a rated speed in excess of 1.5 Mtrs./Sec.

(3) The stroke of the spring buffer shall be equal to or greater than the following :

Full load up Car speed M/s.	*Stroke mm.*
0.5 or less	40
0.5 to 0.75	65
0.75 to 1	100
1 to 1.25	160
1.25 to 1.5	250

(4) Buffers shall be placed symmetrically with respect to the centre of gravity of the lift car within a toerance of ±1.5 cms ; and shall be so arranged, that the lift car, in ordinary circumstances of operations cannot

(5) The buffers shall be fixed under counter-weight similar to those specified for lift cars and arranged symetrically below the weight.

(6) **Stroke**:—The minimum stroke of oil buffers shall be such that the car of the counter-weight on striking the buffer at 115 per cent of rated speed shall be brought to rest with an average retardation of not more than 10 Mtrs./Sec/Sec.

(7) **Retardation**.—Oil buffers shall develop an average retradation not in excess of 10 Mtrs/Sec/Sec.and shall develop no peak retardation greater than 25 Mtrs/Sec/Sec. having a duration exceeding 1/25 of a second with any load in the car from rated load to a minimum load of 68 kg. when the buffers are struck with an initial speed of not more than 115 per cent of rated speed for buffers conforming with (4).

(8) Oil buffers shall be provided with a means for determining that the oil level is within the maximum and minimum allowable limits. Glass sight gauges shall not be used.

(9) The rate of effective length to the least radius of gyration L/R of compression members of oil buffers shall not exceed 80.

26. Terminal Stopping and final Limit switches — (1) Every electric lift shall be provided with upper and lower normal terminal limit switches arranged to stop the car automatically within the limits of top car clearance and bottom runby (over travel) from any speed attained in normal operation. Such limit Switches are to act independently of the operating device, the ultimate or final limit switches and the buffers.

(2) Normal terminal limit switches may be fitted in the lift car or in the lift well or in the motor room, and such switches shall be brought into operation by the movement of the lift car.

(3) When terminal limit switches are situated in the machine room they shall be mounted on and operated

by stopping device mechanically connected to and driven by the lift car without dependance upon friction as a driving means. An automatic safety switch shall be provided to stop the machine should the tape, chain, rope or other similar device mechanically connecting the stopping device to the car fail.

Provided that when the floor controlling or selector of an automatically operated lift is driven in accordance with the requirement, the floor stopping contacts for each terminal floor may serve as normal terminal floor stopping devices.

(4) *Ultimate or final switches.*—Electric Lifts shall in all cases be provided with ultimate or final limit switches arranged to stop the car automatically within the top and bottom clearances independently of the normal operating device and the terminal limit switches. The switches and the oil buffer shall be so arranged that the opening of the switch and the engagement of the buffer shall be as nearly simultaneous as is possible. When spring buffers are employed, the switches shall open before the buffers are engaged.

(5) Ultimate or final limit switches shall act to prevent movement of the lift car under power in both directions of travel and shall, after operating, remain open until the lift car has been moved by a hand winding to a position within the limits of normal travel.

(6) Ultimate or final limit switches shall not be mounted on the lift car and shall be operated by the movement of the lift car in the lift well.

(7) Ultimate or final limit switches shall not control the same switches on the controller as those controlled by the terminal limit switches unless two or more separate and independent switches are provided, two of which shall be closed to complete the motor and brake circuit in each direction of travel. When the ultimate or final limit switches control the same switch or switches on the controller as the operating device or the terminal limit

switches, they shall be connected in the control circuit on the opposite side of the line.

(8) Ultimate limit switches designed to open the main circuit of the motor may control the same switch or switches on the controller as those controlled by the terminal limit switches, but when such ultimate limit switches are employed on direct current power supplies, they shall be provided with additional contacts to control the brake circuits. All ultimate or final limit switches shall be of enclosed type and shall be securely mounted. The contacts of all such switches shall be opened positively and mechanically by the movement of the lift car.

27. **Earthing:**—(1) The terminal for the earthing of the frame of the motor, winding machine, the frame of the control panel, the cases and cover of the tappet switch and similar electric appliances which normally carry the main current shall be at least equivalent to a 10 mm. dia bolt stud or screw. The cross-sectional area of copper earthing conductor shall be not smaller than half that of the largest current carrying conductor subject to an upper limit of 65 mm 2.

(2) The terminal for the earthing of the metallic cases and covers of door interlocks, door contacts, call and control buffer, stop buttons, car switches, limit switches, junction boxes and similar electrical fittings which normally carry only the control current shall be at least equivalent to a 5 mm. brass screw, such terminal being one specially provided for this purpose and the earth conductor shall be at least equivalent to a 7/0.750 mm. conductor.

(3) The earthing conductor shall be secured to earthing terminal in accordance with the ISS and also in conformity with the latest provisions of IE Rules 1956.

(4) The exposed metal parts of electrical apparatus installed on a lift car shall be sufficiently bonded and earthed.

(5) Where screwed conduit scews into electric fittings carrying control current, making the case and

cover electrically continuos with the conduit, the earthing of the conduit may be considered to earth the fitting Where flexible conduit is used for leading into a fitting the fitting and such length of flexible conduit shall be effectively earthed.

(6) One side of the secondary winding of bel transformers and their cases shall be earthed.

28. Supply Cables and Switches:—(1) Each lift should be provided with a main switch or circuit breaker of adequate capacity and in this switch should terminate the incoming supply cable. For a single lift, this switch should be fixed adjacent to the machine room entrance. In a machine room common to more than one lift each main switch should be conveniently situated with respect to the lift it controls. Switches and fuses (which may form part of a distribution switch board) shall be provided for isolating the supply cables to the machine room.

(2) Where a supply cable serves more than one lift a diversity factor may be used for determination of conductor size.

29. Quiet Operation:—Every precaution should be taken with passenger lifts to ensure quiet operation of the lift doors and machinery. The insulating of the lift machine and any motor generator from the floor by rubber cushions or by a precast concrete slab with rubber cushions, prevents transmission of most of the noise.

30. Fire Protection:—To prevent the fire from spreading by means of the lift-well, lift-well enclosure should be built of brick or similar material, and the landing be fire resisting. A vent should be provided in the top of the lift well enclosure to allow any accumulation of smoke therein to escape to the open air. The machine room should be constructed of a suitable grade of fire resistingmaterial and precautions should be taken to

minimise spread of fire from the machine room into the lift well,

31. Electrical wiring and apparatus:—(1) All electrical wiring and apparatus shall conform to IE Rules, 1956 in addition to regulations in force relating to Fire insurance of building in which the lift is installed.

(2) All electrical supply lines and apparatus in connection with the lift installation shall be so constructed and shall be so installed, protected, worked and maintained that there may be no danger to persons therefrom.

(3) All metal casings or metallic coverings containing or protecting any electric supply lines of apparatus shall be efficiently earthed.

(4) No bare conductor shall be used in any lift car as may cause danager to persons.

(5) All cables and other wiring in connection with the lift installation shall be of suitable grade for the voltage at which these are intended to be worked and if metallic covering is used it shall be efficiently earthed.

(6) Suitable caution notice shall be affixed near every motor or other apparatus in which energy is used at a pressure exceeding 250 volts.

(7) Circuits which supply current to the motor shall not be included in any tiny or multi-core trailing cable used in connection with the control and safety devices.

(8) A trailing cable which incorporates conductors for the control circuits shall be separate and distinct from that which incorporates lighting and signalling circuits.

(9) The cables used in Lift installations shall con-

32. Floor Number Board.—The numbering of floors shall conform to the system given below :

Floor		*Indication*
Sub-basement	....	B2
Basement	....	B1
Entrance floor (ground floor)	....	1
First Floor	....	2
Second Floor	....	3
Third Floor	....	4
Fourth Floor	....	5
Fifth Floor	....	6

33. Emergency Exit.—(1) Lift cars where practicable shall be fitted with an emergency exit of an area not less than 0.25 m2. (measuring not less than 40 cm. on any side) where more than one lift are installed in a lift well, such exit may be provided in the side adjacent to the adjoining lift car. Where conditions do not allow the provision of an emergency exit, the car safety gear shall be of a type that car be released by raising the lift car.

(2) Top exit shall open outward and shall be clear of all gears or equipment marked on the top of the cage. The side exit shall not open outward and shall be so arranged that it is not obstructed by car frame members or, whenever possible, by travelling cables and other lift well equipment. Exits for adjacent lift car shall be directly opposite each other to allow easy transfer of passengers and they shall be held in place by not less than four fastenings. The fasteners shall not be readily removable except with a special key kept in the lift car. All emergency exit doors and panels shall be provided with an electric switch to prevent the lift from being operated when the emergency door or panel is opened or removed. Exit covers shall be so attached to the car top that it is possible to open them from the top of the car

FORM—'A'

(*See* Rule 3)

Application for permission to erect lifts

1 Full name and address of the applicant	
2 Name and address of Agent, if any	
3 Whether a licence has been previously granted (details to be given)	
4 Type of lift proposed to be erected (A sketch of the Lift and erection plans as per Rule 11 shall be attached.	
5 The rated maximum speed of the lift	
6 The makers' or designers' rated capacity in weight (Kgs.)	
7 The maximum No. of passengers in addition to the lift operator which the lift can carry	
8 The total weight of the lift cage carrying the maximum load	
9 The weight of the counter weight (Kgs.)	

10	The number, description weights (Kgs.) size (in Sq. mm.) of the supporting cables	
11	The depth of the pit from lowest point of the lift cage when at the lowest floor (in mms.)	
12	Details of the construction of the overhead arrangement with weight (Kgs.) and sizes (mms.) of beams	

[*See* Rule 4 (1)]

Notice intimating the inspection of the work of erection of a Lift and application for a licence to work the lift.

To

The Inspector of Lifts,
Bangalore.

***Subject*:** Erection of Lift at the..... .....

....

Sir,

With reference to your letter No..... dated by which permission has been granted to erect a lift at the above mentioned premises. I/We have to state that the work of erection of the Lift was completed on..... ..... by ... . We further request that a licence for working the lift may be granted. The work of erection of the lift has been carried out in accordance with the Karnataka Lifts Rules, 1975.

A fee of one hundred rupees has been paid into the State Bank/ Government Treasury.....and challan for that amount is enclosed.

Date: Yours faithfully,

Signature of the Owner of the Premises.

N.B.—The form should also accompany the work completion report of erector.

FORM—'C'

[(*See* Rule 4 (2)]

Government of Karnataka

Mr/Messrs.....hereby authorised to work the lift installed in the premises..... ....owned by and situated at..... ....subject to the conditions mentioned in Karnataka Lift Rules, 1975.

Date.....

Government of Karnataka
Bangalore.

FORM 'D'

(*See* Rule 5)

Application for permission for working a lift installed prior to the enforcement of Karnataka Lifts Act.

1. Full name and address of the Applicant ...	
2. Name and address of agent, if any ...	
3. Type of lift erected (A sketch of the lift shall be attached) ...	
4. The rated maximum speed of the lift (Mtrs/Sec) ...	
5. The makers' or designers' rated capacity ..	
6. The maximum No. of passengers in addition to the lift operators which the lift can carry ...	
7. The total weight of the lift cage carrying the maximum load (Kgs) ...	
8. The weight of the counter weight (Kgs) ...	
9. The number, description weight and size (Sq.) Mms) of the supporting cables ...	

10.	The depth of the pit from the lowest part of the lift cage when at the lowest floor ...	
11.	Details of construction of the overhead arrangement with weight (Kgs) and sizes (mms) of the beams ...	
12.	Full details as to in what respects the lift does not comply with the requirements laid down in the schedule of Karnataka Lift Rules, ...	
13.	A fee of one hundred rupees has been paid into the State Bank...../ Govt., Treasury and a challan for that amount is attached ...	

FORM E.

[(*See* Rule 8(1)]

Under Sub-Section (1) of Section 8 of Karnataka Lifts Act 1974, I herby give notice that on.....at.....A.M./P.M. I will visit the building.....in which the Lift is installed/being installed/in connection with which an application for a licence has been received for the purpose of inspecting the lift/the installation/the site for the lift.

Dated Signature.

The date of 19

FORM E

[*See* Rule 8 (2)]

Form of order under Section 8 (2) of Karnataka Lifts Act, 1974

To Date.....

.....(Name of licensee)

1. Whereas it appears to me that the lift installed at the premises.....owned by you is in an unsafe condition, I hereby call upon you under sub-section (2) of Section 8 of Karnataka Lifts Act 1974 to carry out such repairs and/or alterations to the said lift as are stated in the accompanying sheet on or before the.....day of 19.....and to report compliance in writing to me.

2. I hereby also order that you shall discontinue the use of the lift and shall not resume the working thereof until the repairs and/or alterations referred to in paragraph 1 above have been carried out and the unsafe condition of the Lift is removed and until a written permission to resume the working of the Lift is granted by me.

Date..... Signature.....

FORM 'G'

(See Rule 9)

Notice of accidents to lifts

To

The Inspector of Lifts,
Karnataka, Bangalore.

Under sub-Section (1) of Section 10 of the Karnataka Lifts Act 1974, I/We hereby inform you that an accident has occured in the operation of Lift at the premises owned by me/us..... on.....the details of which are appended below.

I/We have discontinued the working of the Lift, pending permission to resume the working.

Date: Your's faithfully

Copy to the Commissioner of Police, Bangalore.
Copy to the District Magistrate.

By Order and in the name of the Governor of Karnataka,

BHIM RAO,
Deputy Secretary to Government,
Public Works and Electricity Department.

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